

**ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM**

Animal Abstract

Element Code: AFCJB13090

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CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Gila ditaenia*
COMMON NAME: Sonora Chub
SYNONYMS: *Richardsonius gibbosus*
FAMILY: Cyprinidae

AUTHOR, PLACE OF PUBLICATION: Miller, R.R., 1945. Copeia 1945:104-110.

TYPE LOCALITY: Rio Magdalena, 0.5 km west of La Casita, Sonora, Mexico; approximately 40 km south of Nogales, Arizona.

TYPE SPECIMEN: Mearns, E.A. 1893; see Snyder, J.O. 1915. Miller, R.R. 1945.

TAXONOMIC UNIQUENESS: There are 7 species of the genus *Gila* in Arizona.

DESCRIPTION: Typically less than 200.0 mm (7.9 in.) in total length (rarely exceeds 125 mm (4.9 in.) in United States). Body moderately chubby, fusiform and terete. Scales relatively small, 63 to 75 in lateral line, bearing prominent radii on all fields. Eight fin rays in dorsal, anal, and pelvic fins; rarely 9 in dorsal and 7 in pelvic and anal fins. Pharyngeal teeth, 2, 5-4, 2 (Minckley 1973).

Coloration dark, with two prominent, black lateral bands above and below lateral line. Lower sides and belly lighter. Breeding colors red at bases of paired and anal fins, with some orange on belly and other ventro-lateral areas, basicaudal spot discrete, round oval in shape.

AIDS TO IDENTIFICATION: The round spot at base of tail is an excellent distinguishing characteristic.

ILLUSTRATIONS: B&W photo (Minckley 1973:108)
Color photo (Rinne and Minckley 1991:25)
B&W photo (Wildlife Habitat Management Staff Group 1975:12).

TOTAL RANGE: Endemic to streams of the Rio de la Concepcion drainage of Sonora, Mexico and Arizona. In Sonora, it inhabits the Rios Altar and Magdalena. In Arizona, it occurs in Sycamore Creek (Bear Canyon), a tributary of the Rio Altar, 25 km (15.5 miles) west of Nogales in Santa Cruz County (USFWS 1992).

RANGE WITHIN ARIZONA: Sycamore Creek, and two of its tributaries (Penasco Creek and an unnamed stream), Atascosa Mountains, Santa Cruz County.

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: Can persist in small isolated pools during periods of drought.

REPRODUCTION: Minckley (1973) indicated that spawning likely occurred during spring based on dates of collection of young-of-year. However, larval and juvenile Sonora chub were found in Sycamore Creek and in a tributary to Rio Altar in November, indicating that breeding is not limited by season (Hendrickson and Juarez- Romero 1990). Adults with breeding coloration were also taken during this period. Adults with breeding coloration have been observed April through September (USDI, Fish and Wildlife Service 1992). Carpenter (1992) and Bell (1984) have suggested that spawning occurs after spring and summer rains.

FOOD HABITS: Aquatic and terrestrial insects, and algae, in decreasing order of volume.

HABITAT: In Sycamore Creek, found most commonly in the largest, deepest, and most permanent pools, with bedrock-sand substrates, and areas free of thick pads of floating algae (Carpenter and Maughan 1993).

ELEVATION: Less than 305 to 1,219 m (1,000 to 4,000 ft.). Based on records in the Heritage Data Management System (HDMS), elevation ranges from 3,500 - 4,190 ft (1068 - 1278 m) (AGFD, unpublished data accessed 2001).

PLANT COMMUNITY: Riparian vegetation includes *Platanus* spp. (sycamore), *Populus fremontii* (cottonwood), *Alnus* spp. (alder), *Salix* spp. (willow), *Quercus* spp. (oak), *Pinus* spp. (pine) (Wildlife Habitat Management Staff Group 1975).

POPULATION TRENDS: As of 1992, the species was locally abundant in Sycamore Creek (Minckley and Deacon 1968, U. S. Fish and Wildlife Service 1992). Distribution of the Sonora chub in the United States is intact and should remain secure, barring major environmental change (Minckley 1983; Minckley 1985).

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: LT with Critical Habitat (USDI, FWS 1986)
STATE STATUS: WC (AGFD, WSCA in prep)
[State Endangered AGFD, TNW 1988]
OTHER STATUS: No Forest Service Status (USDA, FS Region 3 1999)

[Forest Service Sensitive, USDA, FS Region 3
1988]

Listed Threatened (Secretaría de Medio Ambiente
2000)

[Listed Threatened Secretaría de Desarrollo Social
1994]

MANAGEMENT FACTORS: Sycamore Creek is intermittent and has been highly modified by human activities including grazing, mining, recreation, and the introduction of exotic taxa (USDI, Fish and Wildlife Service 1992). Sycamore Creek is at the edge of the range of the species, is isolated from other populations of Sonora chub, and has marginal habitat (Hendrickson and Juarez-Romero 1990). As such a series of environmental perturbations made worse by degraded watershed conditions could cumulatively result in extirpation of the species from the United States. The importance of a stable, undisturbed watershed for maintaining the environment needed for survival and reproduction of Sonora chub cannot be overstated (USDI, Fish and Wildlife Service 1992). Predation by exotic green sunfish is also a cause for concern.

Threats: reduced flows; drought; mining activity; predation by and competition with nonnative fishes; (in Mexico) hybridization with an undescribed chub (*Gila* sp.).

Management needs:

- Snyder, J.O. 1915. Notes on a collection of fishes made by Dr. Edgar A Mearns from rivers tributary to the Gulf of California. Proceedings of the United States National Museum 49:573-586.
- USDA, Forest Service Region 3. 1988. Regional Forester's Sensitive Species List.
- USDA, Forest Service Region 3. 1999. Regional Forester's Sensitive Species List.
- USDI, Fish and Wildlife Service. 1986. Endangered and Threatened Wildlife and Plants; Final Rule to Determine the Sonora Chub to be a Threatened Species and to Determine its Critical Habitat. Federal Register 51(83):16042-16047.
- USDI, Fish and Wildlife Service. 1992. Recovery Plan for Sonora chub (*Gila ditaenia*). U.S. Fish and Wildlife Service, Region 2, Albuquerque, New Mexico. pp. 50.
- Wildlife Habitat Management Staff Group. 1975. Endangered and unique fish and wildlife of the southwestern national forests. U.S. Department of Agriculture Forest Service, Southwestern Region. pp. 12,13.

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ADDITIONAL INFORMATION:

Revised: 1994-07-12 (ATR)
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